Some New or Noteworthy Species of Malaysia

By C. X. Furtado

While arranging the material of the genus Ardisia in the Singapore Herbarium, some new species or new records were noticed, while others had to be excluded from the genus. The status of some of these will have to be settled by comparing the types; but the following notes are published here in order either to clarify some confusions that existed in the herbarium and also in the recently published literature on the subject, or to give a status to some of the names that have been adopted in the Singapore herbarium where the types and other specimens cited in this paper are preserved. As originally published by Mez, the sections mentioned here were subgenera, but they have been treated as Sections by Merrill and others, an arrangement that seems to be more in accord with the present concepts of nomenclature.

ARDISIA Swartz

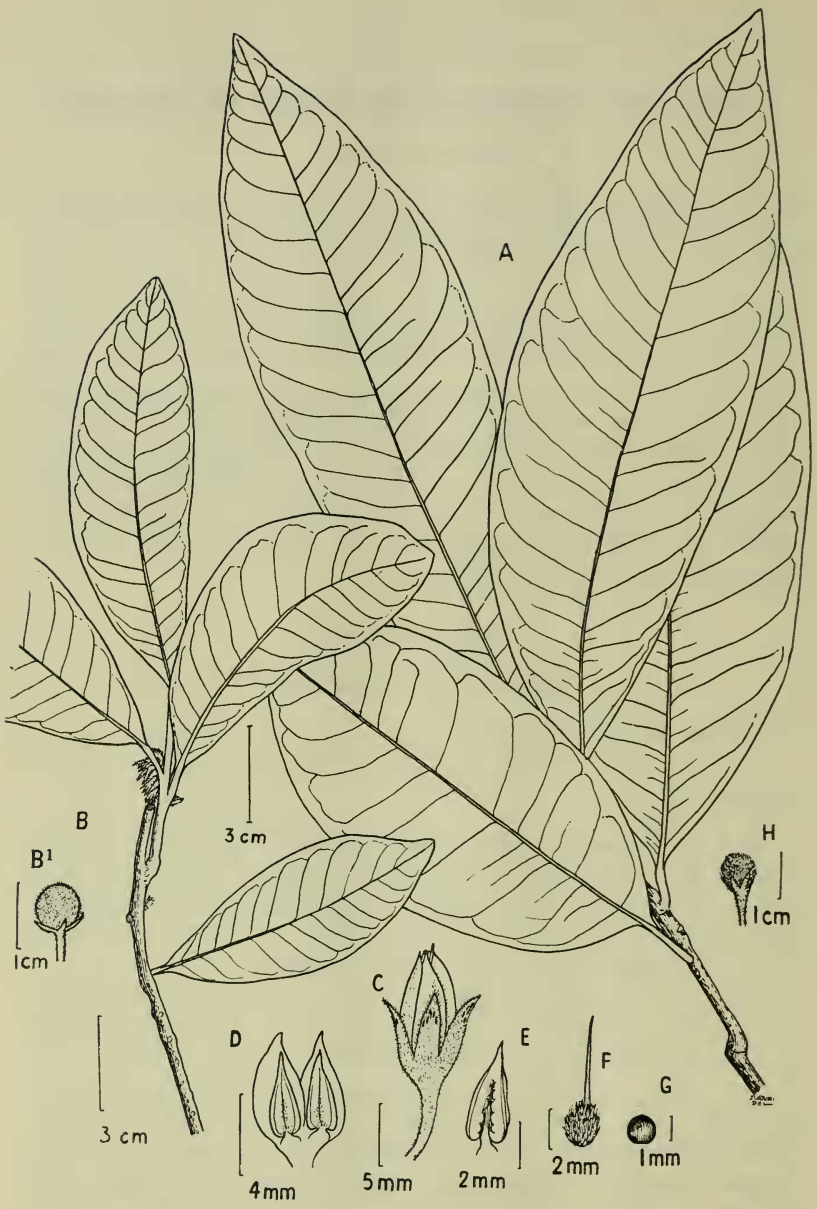
Section Pimelandra Mez.

1. **Ardisia ferox** Furtado **sp. nov.**

A. pachysandra (Wall.) Mez *sensu* Ridl., Fl. Mal. Pen. II (1923) 240 p.p.

Ab A. fuliginosa, *cui affinissima, innovationibus deciduo hirsutis; foliis utrinque glaberrimis, punctulis majoribus margines versus sitis, vix reticulatis; inflorescentiis valde abbreviatis, omnino hirsutis; sepalis liguliformibus, hirsutis, basin versus fere ¼-connatis; ovariis baccisque longe pilosis sat dissimillima.*

Ramuli validiusculi, novelli dense ferrugineo pilosi, adulteriores mox glabrati. *Folia* petiolis hirsutis vel glabris, 10–12 mm. longis, in ramulos lineatim decurrentibus stipitata, coriacea, elliptica, 12–25 cm. longa, 4–8·5 cm. lata, utrinque glaberrima, nitida, nervis lateralibus utrinsecus 14–16 patentibus, prope margines arcuatim ascendentibus et inter se unitis praedita, apice obtusa, basin versus oblique angustata, immo paulo decurrentia. *Inflorescentia* valde abbreviata, flores hirsutos gerens. *Sepala* liguliformia, hirsuta, basi fere ¼-unita, haud imbricata. *Petala* sepalis longiora, extus hirsuta, ovata, acuta. *Stamina* ovato-acuta, petalis breviora. *Ovarium* valde hirsutum; ovula glabra, verticaliter corrugata. *Bacca* pisiformis, ferrugineo-pilosa, circa 5 mm. in diam.



Ardisia ferox Furtado (A–B1: Holotypus; C–H: Mat s.n.)

A, Ramulus cum foliis majoribus. B, Ramulus cum infructescentiis. B1, Fructus cum calyce. C, Flos ante anthesin. D, Petala duo postice visa. E, Stamen antice visum. F, Ovarium. G, Placenta. H, Fructus juvenilis.

MALAYA: Johore, Gunong Pulai (Nur & Kiah 7,778—Holotypus; Ridley 12,189; Mat s.n. in 1892): Omnia specimina in herbario Singaporensi conservata.

2. **Ardisia fuliginosa** Bl., Bijdr. (1826) 692; Mez in Engl. Pflanzenr. IV 236 = Heft 9 (1902) 99.

A. tomentosa Presl., Rel. Haenk. II (1835) 66: Mez in Engl. Pflanzenr. IV, 236 = Heft 9 (1902) 100; Merrill, Enum. Philipp Pl. III (1923) 265. **syn. nov.**

A. disticha A. DC., Prodr. VIII (1844) 129.

SUMATRA: Atjeh (v. Steenis 6,186); Takigeum (W. & C. Bangham 726); loc. incert. (Forbes 2,142).

BORNEO: North Borneo, Marudu Kudat (Austin A 1,191); Tawao (Elmer 20,462). **Sarawak,** Rejang (Haviland 3,029).

JAVA: Besuki (Steenis 10,826).

PHILIPPINES: loc. incert. (Cuming 849, isoholotypus of *A. disticha*); Jamindan (Ramos & Edano 30,999); Mt. St. Isidoro (Fenix 30,008); Angat (Ramos & Edano 34,062), etc.

There is a good deal of variation in the tomentum of the leaves as well as in the branching of inflorescences.

3. **Ardisia korthalsiana** Scheff., Comm. Myrs. Arch. Ind. (1867) 57; Mez in Engl. Pflanzenr. IV 236 = Heft 9 (1902) 99.

A. teysmanniana Scheff. *sensu* Ridl., Fl. Mal. Pen. II (1923) 240 p.p.

MALAYA: Trengganu (Moysey & Kiah 33,384). **Pahang,** Gunong Tapis (Symington & Kiah 28,825); Sungei Tahan (Kiah s.n.); Sungei Teku (Kiah 31,709); Wray's Camp on Tahan (Ridley 16,241). **Malacca,** loc. incert (Alvins 1755, as *Kayu Segankan* & 582 as *Meddang Panjang*); Bukit Bruang (Derry 456, as *Tambang Sisir*); Lubok Kadondong (Ridley s.n. on 13–VI–1892); Bukit Besar on Mt. Ophir (Ridley in Dec. 1898); Selandor (Alvins 673 = 251, as *Pokok Lagan*). **Johore,** Gunong Belumut (Holttum 10,693 & 10,788).

SUMATRA: West Indragiri in Taluk region (Meijer 4,077 as *Balam Siram*).

ANAMBA ISLANDS: North Jemaja near Padang (Henderson 20,392).

There is a good deal of variation in the specimens. Some (e.g. Moysey & Kiah 33,384 & Kiah 31,709) are practically glabrous and shining in the lower surface with a few minute hairs on the

midrib and with minutely dense reticulations and black glands on the upper surface. The Johore specimens have glabrous and more coriaceous leaves, and though the leaves are similar, black glands are conspicuous on their upper surface in Holttum 10,788 but not in Holttum 10,693. Many other specimens have leaves which are more pilose beneath.

This is the first record in Malaya.

4. **Ardisia pachysandra** (Wall.) Mez in Engl. Pflanzenr IV 236 = Heft 9 (1902) 97 fig. 14 A–E, partim; King et Gamble, Mat. Fl. Mal. Pen. IV (1905) 331; Ridl., Fl. Mal. Pen. II (1923) 240 p.p.

MALAYA: Kedah, Gunong Jerai=Kedah Peak (Ridley in VI —1893); Gunong Bintang (Haniff 21,118). **Perak,** Piah (Penak 39,221); Pulau Rumbia (Seimund on 28–III–1926); Tapah Ridley 14,062). **Penang,** Telok Bahang (Curtis = 1156, as *Limpanan*); Waterfall (Curtis 3,737; Nur 1,225); Government Hill (Curtis = 1156; Ridley = Curtis 1156); Penara Bukit (Curtis 1156); loc. incert. (Curtis ? 3181 & 3164). **Selangor,** Weld Hill (Rahman, Tree 334). **Johore,** Gunong Panti (Ridley in Dec. 1897); Sungei Kayu (Corner 29,197).

BANGKA: (Anta 212, & 685 & 966).

ANAMBA ISLANDS: near Terempak in Sianţan (Henderson 20,186); Gunong Ranai in Bunguran (v. Steenis 1287); Padang Leting.

JAVA: Tjibodas (Yates 2,924); Gunong Gendero (Kanta 236); Besoeki (Buwalda 7,255 and 7,377).

This species is listed here to show the range of distribution. Usually non-Malayan specimens of this species are distributed unnamed or as *A. fuliginosa.*

There is a good deal of variation in this species, in regard to the size of peduncle and the sepals and in the distribution of tomentum and glands on the leaves; but the ovaries are glabrous. Some Javanese specimens can be mistaken for *A. fuliginosa* if ovaries are not examined.

Ridley 176 & 2,800[a] which were cited here by Mez, have been transferred to *A. teysmanniana.*

5. **Ardisia teysmanniana** Scheff in Tijdschr. Nederl. XXXI (1870) 368; Mez in Engl. Pflanzenr IV 236 = Heft 9 (1902) 97; King et Gamble, Mat. Fl. Mal. Pen. IV (1905) 122; Ridl., Fl. Mal. Pen. II (1923) 241 p.p.
A. pachysandra Mez op. cit. p. 97 partim.

MALAYA: Perak? loc. incert (Ridley 462). **Malacca,** Sungei Udang (Derry 1,143 as *Medang Ketanak*). **Johore,** Sungei Sedili (Ngadiman 36,894). **Singapore,** Sembawang (Ridley 5,573); Chan Chu Kang (Ridley 6,788); Changi (Ridley 2,800; 5652 & 176; Goodenough 2,800); Bukit Timah (Ridley 2,800[a]; Corner sn.; Chew 10).

Ridley 176 & 2800[a] were cited by Mez under *A. pachysandra.*

Section Akosmos Mez

6. **Ardisia laevigata** Bl., Bijdr. (1826) 690.

MALAYA: Pahang, Cameron Highlands, 1500–1700 m. alt. (Henderson 18,022; Symington 21,016; Osman 20,810; Holttum 24,985).

JAVA: alt. 1500–2400 m.: Pasoeroea (N.-Ind. Flor. Serv. No. 7, 143); Tjibodas (Sapun 239; Burkill 8,265).

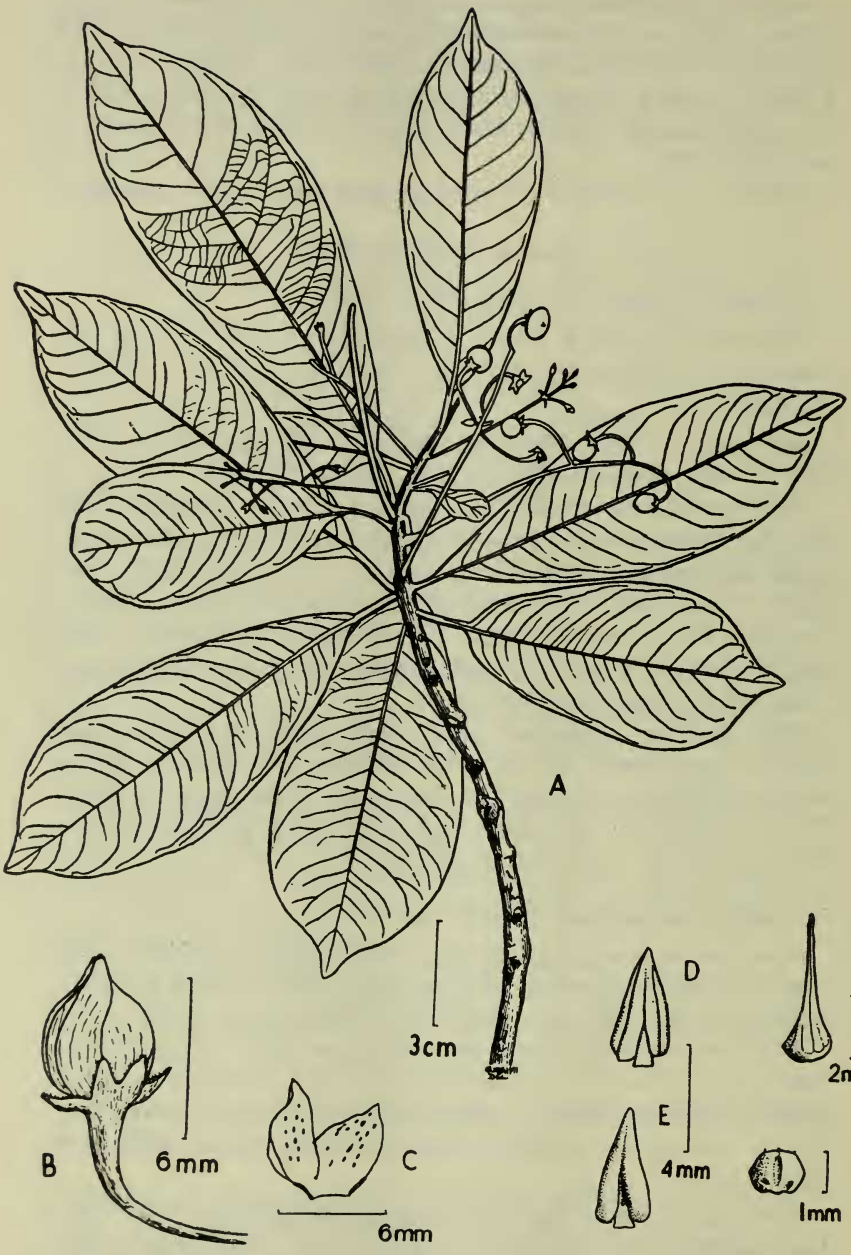
This is a first record for this species outside Java. Burkill notes that the flowers are downwardly directed and pinkish white, leaf-stalks crimson and berries round greenish, all found on the same plant at the same time. Henderson records as follows: "Small, straggling tree in swampy places. Ripe fruit red." Symington's notes suggest that the tree is 15 ft. tall and the fruit is green at first but turns red later and finally black.

The Malayan specimens show more coriaceous leaves and broader sepals which are somewhat ciliolate along margins. But no material differences are noticed to separate these from the Javan forms. Gland dots on sepals and petals may be found in the Malayan as well as the Javan specimens.

7. **Ardisia praetermissa** Furtado **sp. nov.**

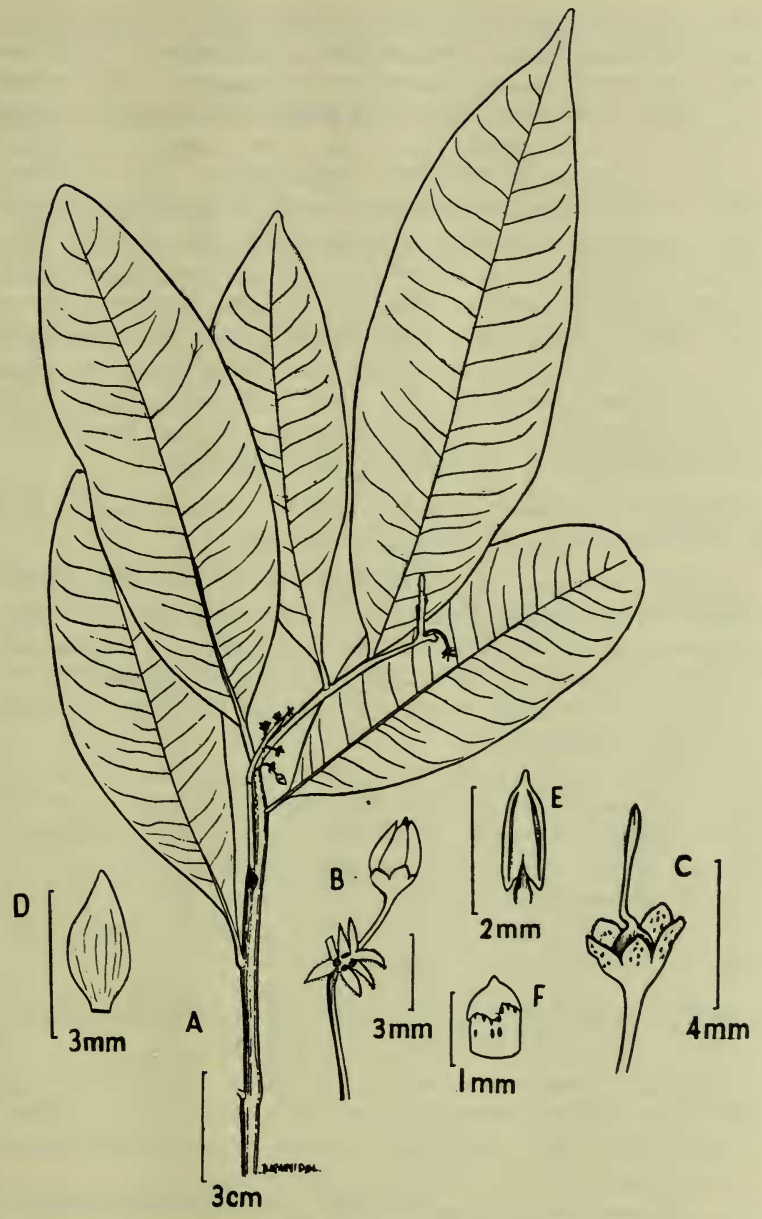
Inter species Akosmosis *insignis: innovationibus lepidotis; foliis coriaceis, ellipticis, primo utrinque serius subtus tantum lepidotis, margine integerrimis, laxe reticulatis; inflorescentiis quam petioli 1·5–2·5 cm. longi altioribus, in ramulos primarios apice floribus pedicellatis congestis et bracteolis ciliolatis fere linearibus praeditos divisis; sepalis punctulatis ciliolatis quam petala valde brevioribus, basi ½–1/3–unitis; staminibus petala brevioribus apice subito acuminatis.*

Frutex circa bimetralis, in innovationibus lepidotus. *Folia* elliptica, coriacea, 12–18 cm. longa, 4–5·5 cm. lata, basin versus sensim vel rotundato attenuata, in petiolos 1–2·5 cm. longos, lepidotos, supra canaliculatos, margine scariosos paulo decurrentia, apice



Ardisia laevigata Bl. *(Holttum 24,985)*

A, Habitus. B, Floris alabastrum. C, Petala duo antice visa. D, Stamen postice visum. E, Ibid antice visum. F, Ovarium. G, Placenta.



Ardisia praetermissa Furtado *(Alvins 342—Holotypus)*

A, Habitus. B, Inflorescentiae ramulus cum bracteolis floreque. C, Flos petalis desumptis, ut stylus apice bifidus (?) appareat. D, Petalum. E, Stamen postice visum. F, Placenta nonnihil tabida.

obtusa vel acuminata, primo utrinque dein subtus tantum lepidota, supra veridescentia et in costa mediana valde sulcata, patente nervosa, laxe reticulata, margine integerrima, punctulis multis minutis subtus fere inconspicuis supra saepe manifestis aucta. *Inflorescentia* axillaris, unica completa visa, circa 5 cm. longa, axi lepidota in 7–8 ramulos ad 12 mm. usque longos, apice umbellatim vel subumbellatim floriferentes, bracteolis persistentibus, circa 1–2 mm. longis, linearibus vel lineari-lanceolatis, margine valde ciliolatis praeditos divisa. *Flores* pedicellis 3–4 mm. longis deciduo lepitodulis suffulti, ante anthesin stylis exsertis aucti, in alabastro circa 5 mm. longi. *Sepala* extus minute lepidota, basi ½-unita, in lobis ovata vel ovato-oblonga, apice acuta, dorso sparse punctulata, margine albescentia ciliolataque, circa 2 mm. alta. *Petala* sepalis subtriplo longiora, apice acuta vel obtusa, fere ad basin libera. *Ovarium* glabrum; stylus tortuosus, apice bilobatus?

MALAYA: Malacca, Selandor (Alvins 679=342, nom. vern. *Pokoh Pelandok Payah*—Holotypus in SING.).

This specimen was collected by Alvins on Jan. 30, 1885, and was assigned in our herbarium first to *A. crassa* and then to *A. colorata*. According to Alvins, this plant is common in swamps and grows to a height of 6–7 ft. The label was originally numbered 679, and subsequently it was numbered 342, but the original number has not been cancelled.

The inflorescence is axillary bearing very short branches. In the axis of the only one complete inflorescence available, there are marks of fallen off branches and below its base a scar of the axillant leaf. Only 3 flowers were available, all badly preserved. The style of the one examined bore a mark at the apex as if it was bifid. The ovary and the placenta showed marks of disintegration. The petals seem to be free nearly to base.

8. **Ardisia singaporensis** Ridl. in Journ. Roy. Asiat. Soc. Str. Br. 79 (1918) 92 et Fl. Mal. Pen II (1923) 251.

MALAYA: Singapore, Pulau Ubin (Ridley 2,816, Isosyntype and s.n. in 1891; Goodenough on 3–III–1893); Changi Road (Goodenough 2,833, Isosyntype); Changi (Goodenough 2,814): All specimens cited are in Singapore herbarium.

The inflorescences are borne usually in the axils of the leaves near the apex, but sometimes also of the leaves much below the apex. The flowers are borne in umbels at the end of primary or secondary branches of the inflorescence axis, rarely at the end of the unbranched axis itself.

This species should be placed in Section AKOSMOS and is in no way related to *A. miqueliana.* Specimens of the species were distributed as *A. ferruginea* var. *glabrata* and some were named in Singapore herb. as *A. tuberculata·*

Section STYLARDISIA Mez

9. **Ardisia miqueliana** Scheff. in Tijdschr. Ned. Ind. XXXI (1870) 367 et in Flora LIII (1870) 253; Mez in Engl. Pflanzenr. IV 236 = Heft 9 (1902) 115.

A. ferruginea Mez op. cit. (1902) 108; King et Gamble, Mat. Fl. Mal. Pen. IX (1905) 325; Ridl., Fl. Mal. Pen. II (1923) 250, non *A. ferruginea* H.B. & K. (1818)—**Syn. nov.**

A. rudis Sinclair in Gard. Bull. Sing. XV (1956) 24—**Syn. nov.**

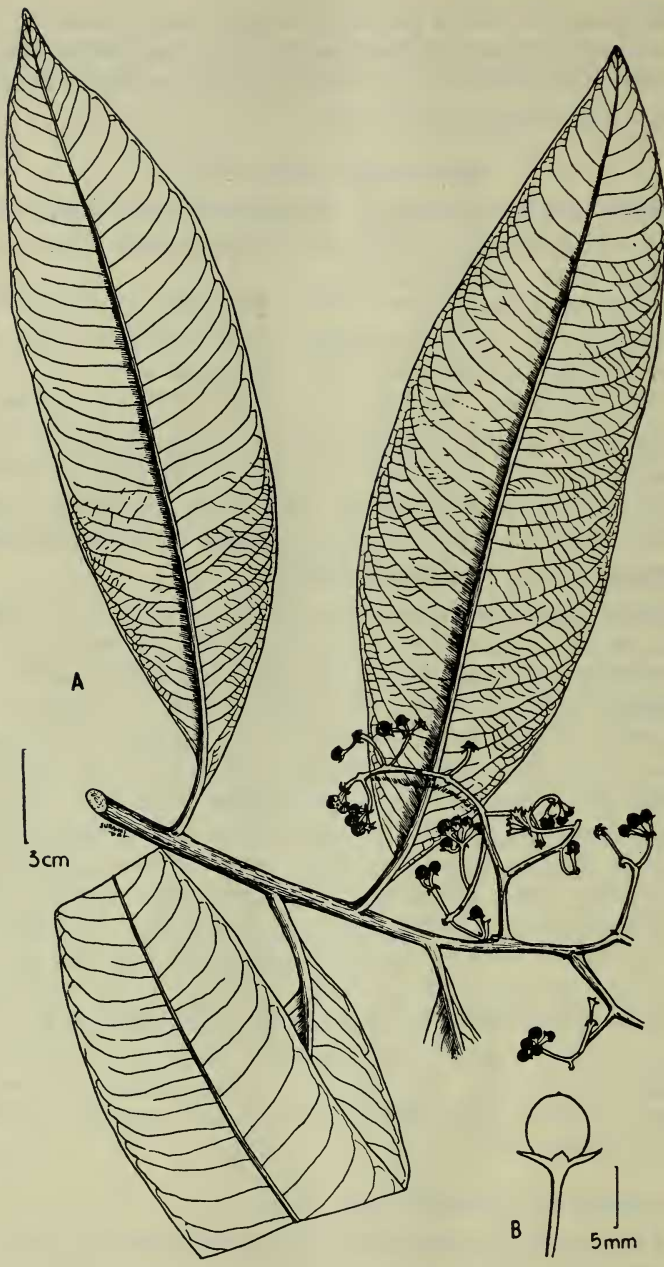
MALAYA: Johore, Kampong Simpai (Lake & Kelsall, 4032, Isoholotypus of *A. ferruginea* in Herb. Sing.); Kluang (Holttum 9,356); Bukit Lenggor (Holttum 24,927); Sungei Kayu (Corner, 32,236; Kiah 32,076); Gunong Belumut (Holttum 10,621). **Singapore,** Nee Soon (Sinclair 40,278).

Already King & Gamble had noted that the leaves were exactly like those of *A. miqueliana.* The specimens collected by Lake & Kelsall were apparently from a plant just beginning to flower and so the fact that the inflorescence was actually terminal became obscured due to the well developed lateral branches at the base of the terminal panicle. I do not know the reasons that led Ridley to transfer *A. ferruginea* Mez from Section AKOSMOS to Section CRISPARDISIA. But there is no doubt that the species should be placed in Section STYLARDISIA, the few well developed flowers showing their styles well above the petals of the unopened flowers.

The holotype of *A. miqueliana* was from Bangka. Corner notes that the plant is 20 ft. tall with monopodial side branches and with silvery grey pustular bark with small lenticels: Twigs, petioles and underside of leaves old hairy. Inflorescence hanging at the end of the side branches. Pedicels purplish upwards and at top. Bracts green. Sepals greenish white, but magenta at base. Petals white with a magenta spot at base. Filaments magenta; connective greenish, anther yellow.

10. **Ardisia nurii** Furtado **spec. nov.**

Ab A. crassa, *cui valde affinis, foliis rigidioribus, nervis lateralibus reticulationibusque subtus validioribus, inflorescentiis omnino minus tomentosis, floribus gracilioribus, sepalis fructibusque minoribus haec species facile distinguenda. Ab* A. colorata *var.* colorata,



Ardisia nurii Furtado *(Nur 10,511—Holotypus)*
A, Ramulus fructiferus. B, Fructus.

quacum confusa, foliis coriaceis nitidisque, bracteolis flores axillantibus persistentibus, floribus majoribus robustioribusque sat distincta.

Arbusculus 3–4 metralis, ramulos robustos gerens. *Folia* oblongo-elliptica, apice acuminata, basi oblique acuta vel oblique decurrentia, vel rotundato-acuta, 18–25 cm. longa, 6–7 cm. lata, utrinque vel supra tantum nitida, subtus brunnescentia et lepidibus minutis deciduis praedita, glandulis haud visibilibus, nervis lateralibus primariis pluribus subtus valde prominentibus supra immersis, in nervum intramarginalem interruptum conjunctis, nervis secundariis multo brevioribus, reticulationibus densis paulo prominulis percursa, petiolis 2–3 cm. longis stipitata. *Inflorescentia* apicalis, pyramidalis, in ramulos arcuatos bi- vel tri-pinnatim divisa, ferrugineo lepidota. *Bracteolae* minutae, linguiformes, ferrugineo-lepidotae, margine ciliatae, pedunculi apice fructiferi persistentes. *Bacca* subglobosa, circa 4 mm. longa, apice compressiuscula, nigra, laevis; pedicelli umbellati, dense lepidoti, 6–10 mm. longi; sepala ovato triangularia, extus dense lepidota, margine flavescentia ciliata, dorso atro-pustulosa, basi breviter tubulosa.

MALAYA: Pahang, Fraser's Hill, alt. 1300–1500 m. (Nur 10,551—Holotypus; Burkill & Holttum 8,514 and s.n. = 8,514; Henderson 11,232). Omnia specimina in Herb. SING. conservata.

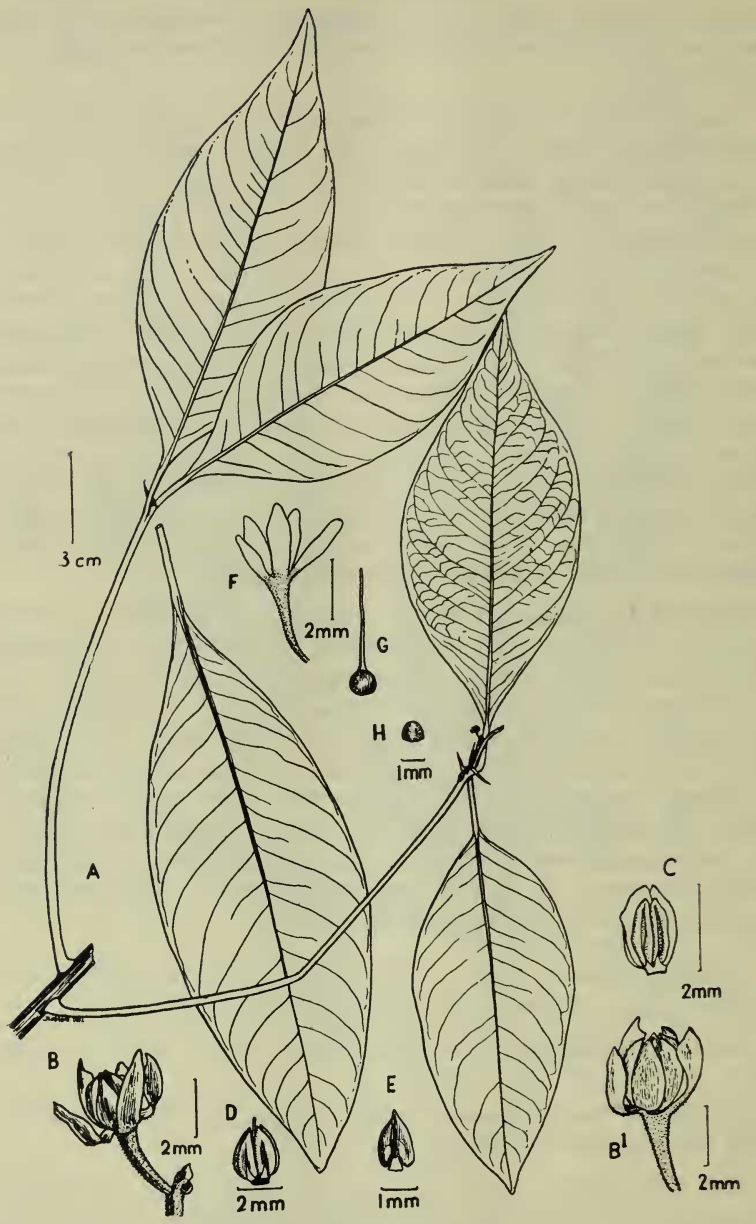
This appears to be localised to Fraser's Hill. The duplicates of the numbers were distributed to other herbaria under *A. colorata* from which this species is distinguished by its coriaceous and shining leaves, persistent bracteoles at the base of the fruits and larger and more robust fruiting calyces. The species appear more close to *A. crassa* which, however, bears much larger flowers and fruits, thicker tomentum on calyces, and less prominent veins and reticulations on the lower surface of the leaves.

11. **Ardisia sessilis** Scheff., Comm. Myrs. Arch. Ind. (1867) 69; Mez in Engl., Pflanzenr. IV. 236 = Heft 9 (1902) 115.

MALAYA: Singapore, Seletar (Ridley s.n. in 1894); Chan Chu Kang (Ridley 3,653 & 3,844).

BORNEO: North Borneo, Tawao (Elmer 21,404 & 21,424). **East Borneo,** Pelawan Besar (Act. 745).

This material has been named on the basis of the description given by Mez, and requires verification by comparing with the type. The Singapore specimens were quoted by Ridley under *A. crassa* in Fl. Mal. Pen. II (1923) 249, while Elmer's collections were referred doubtfully to *A. fortis* Mez by Merrill in Univ. Calif. Publ., Bot. XV (1929) 234.



Ardisia breviramea Merr. (Elmer 20,425—Isotypus)

A, Ramulus floriferus. B, Flos. B1, Ibid sepalo desumpto ut petala fere libera appareant. C, Petala duo cum staminibus postice visa. D, Stamina calyce corollaque desumptis. E, Stamen postice visum. F, Calyx. F, Ovarium. H, Placenta.

The flowers are practically sessile and bear ovate, entire, acute sepals which are ciliate in the margins. The primary nerves tend to join and form an intramarginal nerve on the leaves.

Section ACRARDISIA Mez

12. **Ardisia breviramea** Merr. in Univ. Calif. Publ. Bot. XV (1929) 235.

NORTH BORNEO: Tawao (Elmer 20,425—Isoholotype in SING.).

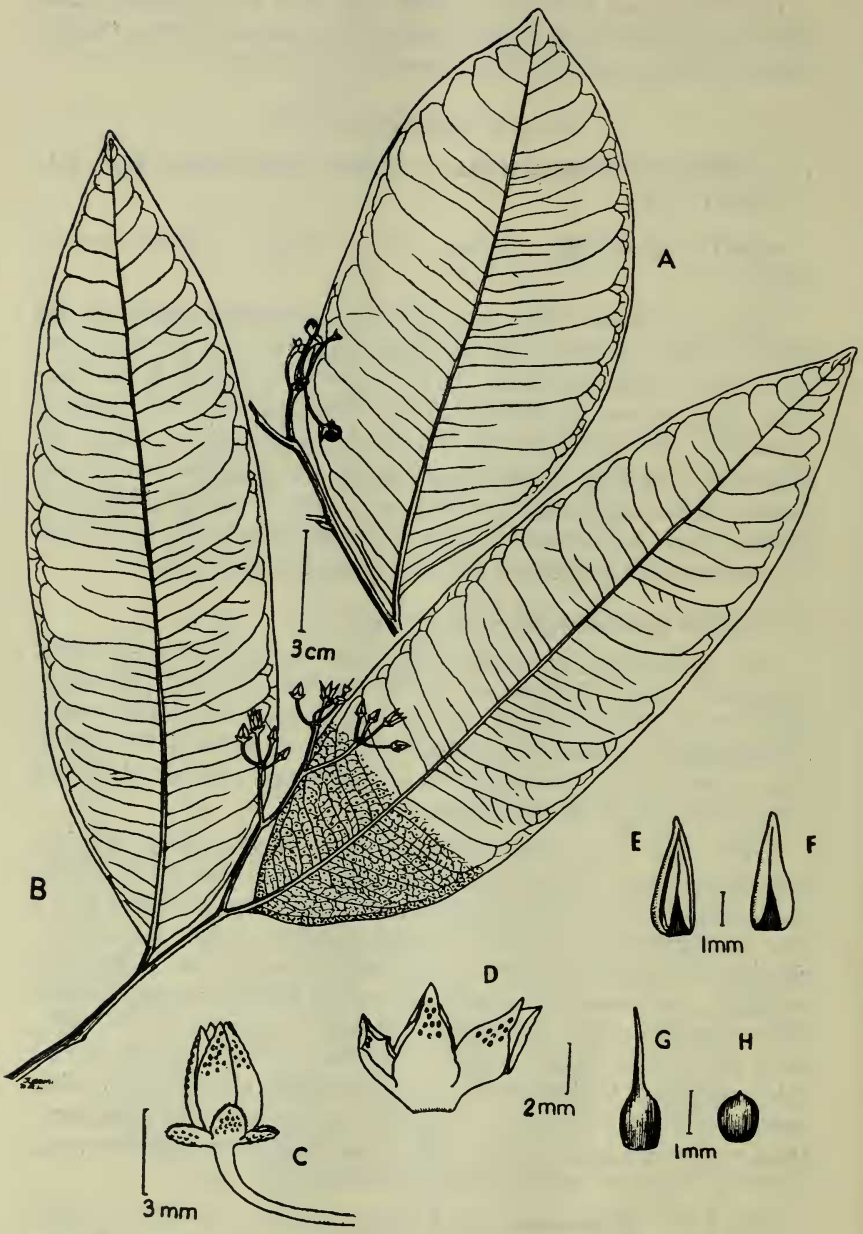
Since the inflorescences are apical (a fact also noted by the author of the species) and since the styles do not protrude just before the flowers open, the species cannot be placed in the sections STYLARDISIA or AKOSMOS to which Merrill had referred doubtfully. He had not seen the flowering specimens. Since the Singapore specimen is the duplicate of the holotype and bears flowers, it has been illustrated here as a help in understanding this species which was described from a fruiting specimen only. As in *A. praetermissa,* the petals are free almost to the base.

13. **Ardisia goodenoughii** Furtado **sp. nov.**

Ab A. divergente, *cui valde affinis, haec species foliis majoribus conspicue pustulatissimis, nervis lateralibus primariis pluribus, sepalis valde glandulosis differt. Ab* A. polyacte, *cui similis, petiolis longioribus, foliorum glandulis pluribus conspicuioribus, floribus minoribus paucioribusque in axi distanter sitis, petalis haud acuminatissimis facile distinguitur.*

Frutex circa 3 m. altus. *Folia* oblongo- vel lanceolato-elliptica, basi in petiolos 6–10 mm. longos corrugato-decurrentia, 12–20 cm. longa, 5–9 cm. lata, interdum ad 30 cm. usque longa et 11 cm. lata, omnino praecipue secus margines valde glandulosa, glandulis juvenilibus atribus vetustioribus pustulosis, densissime reticulata. *Inflorescentia* apicalis, in ramos floribus pseudo-umbellatim praeditos divisa, foliis fere aequalis vel brevior. *Flores* pedicellis 10–15 mm. longis suffulti, deciduo-puberuli. *Sepala* ovata, apice rotundata, basi imbricata, margine minute ciliata, dorso valde pustulata. *Petala* extus parce pustulata, sepalis fere triplo longiora, ovata, apice acuta vel breviter acuminata. *Stamina* petalis breviora. *Stylus* ex alabastro ante anthesin haud exsertus.

MALAYA: Kemaman, Ulu Kajang (Corner 30, 432); Bukit Kajang (Corner s.n. on 30–X–1935); Ulu Bendong (Corner 30,046 & 30,099). **Selangor,** Bukit Tangkol in Ulu Langat (Millard 1,380 as *Kayu Bilal*); Sungei Lalang in Kajang (Symington



Ardisia goodenoughii Furtado *(A, Strugnell 12,716; B–H, holotypus)*

A, Ramulus fructiferus. B, Ramulus floriferus. C, Flos. D, Corolla. E, Stamen postice visum. F, Stamen antice visum. G, Ovarium. H, Placenta.

22,681); Ampang (Strugnell 12,716); Kuala Lumpur (Goodenough 41, Comm. sub numero Ridleyano 10,481, holotypus in SING); Ginting Bidai (Ridley as *Mata Ayam*); Seminyih (Hume 8,371 & 8,401); Ginting Simpah (Hume 9,525). (Omnia specimina in Herb. Sing. conservata).

BORNEO: Sandakan (Cuadra A2,221 SING.).

The Kemaman and the Bornean specimens represent either material taken from young, vigorously growing shoots or a variety of the type form. The leaves are somewhat thinner in structure and the glands are largely not pustulose. In the Kemaman specimens the inflorescence is very much more slender in its axis, branches and pedicels, and the leaves are also much larger.

Section TINUS (Burm.) Mez

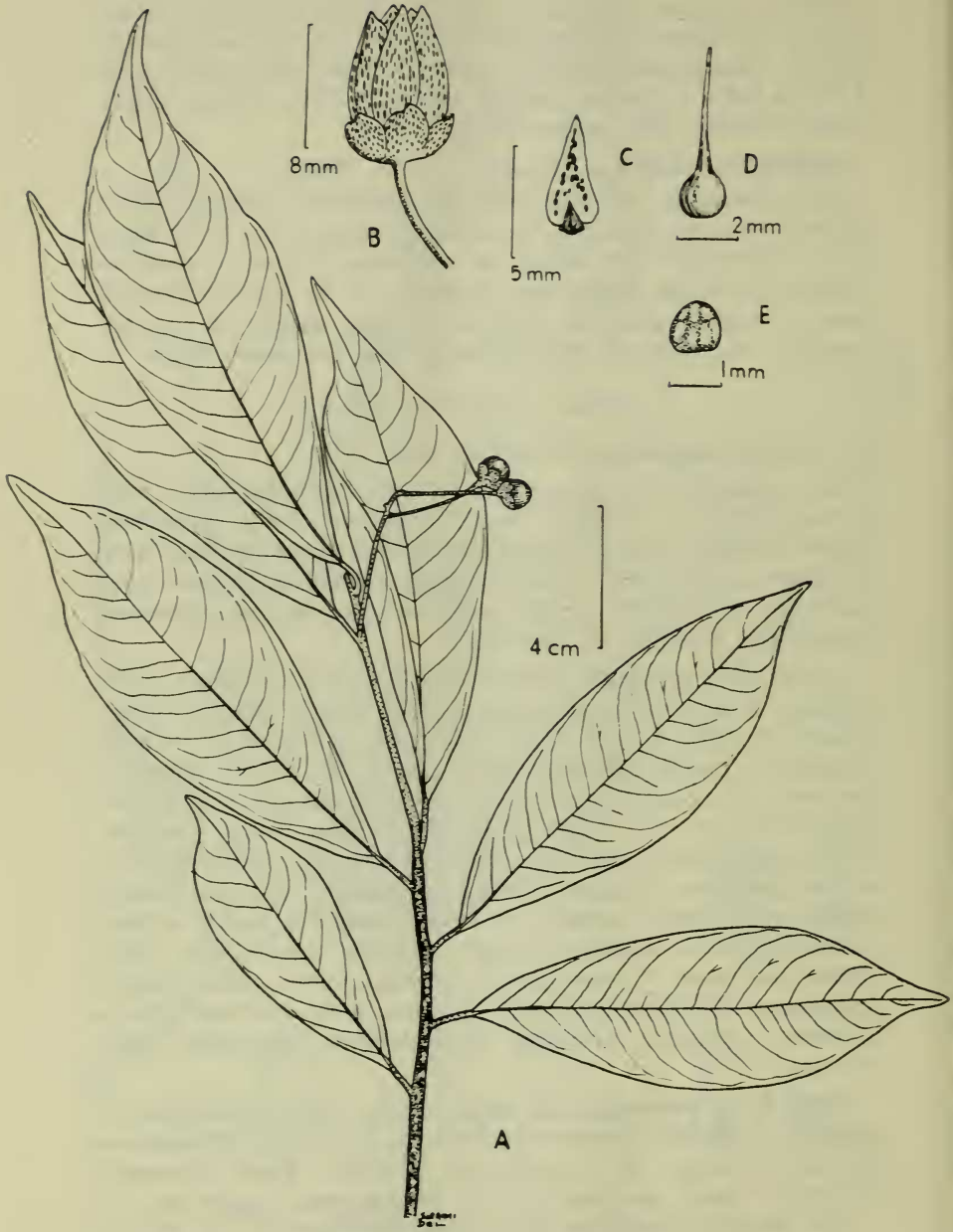
14. **Ardisia gambleana** Furtado **sp. nov.**

A. rhyncophyllae *affinissima, sed petiolis longioribus, foliis obovato-ellipticis, utrinque dense reticulatis, nervis lateralibus prope marginem arcuatim porrectis paulatim evanescentibus, haud in lineam conspicuam intramarginalem conjunctis, inflorescentiis sueto tri- vel bifloris, sepalis ovato-rotundis margine plerumque emarginatis nudisque sat distincta.*

Frutex circa trimetralis. *Folia* chartacea, obovato-elliptica, apice eleganter acuminata, basin versus cuneata, novella lepidibus minutissimis obscuris deciduis tecta, dein glabra, glandulis atris dense punctulosa, nervis primariis utrinsecus 7–10, prope marginem arcuatim porrectis praedita. *Inflorescentia* axillaris, tri- vel biflora, pedunculo 2–3 cm. longo, pedicellis fere aequilongo praedita, omnino glandulosa. *Sepala* basi breviter connata, valde imbricata, dense glandulosa, margine flavescentia nudaque, ovato-rotundata, emarginata. *Petala* sepalis fere triplo longiora, ovata, apicem versus sensim vel interdum abrupte attenuata, summo acuta, extus dense punctulata. *Stamina* petalis breviora, ovata, acuta, postice glandulosa. *Ovarium* globosum, glabrum, pauci-ovulatum. *Bacca* globosa, juventute flavescens glandulosaque, maturitate atra, corrugata.

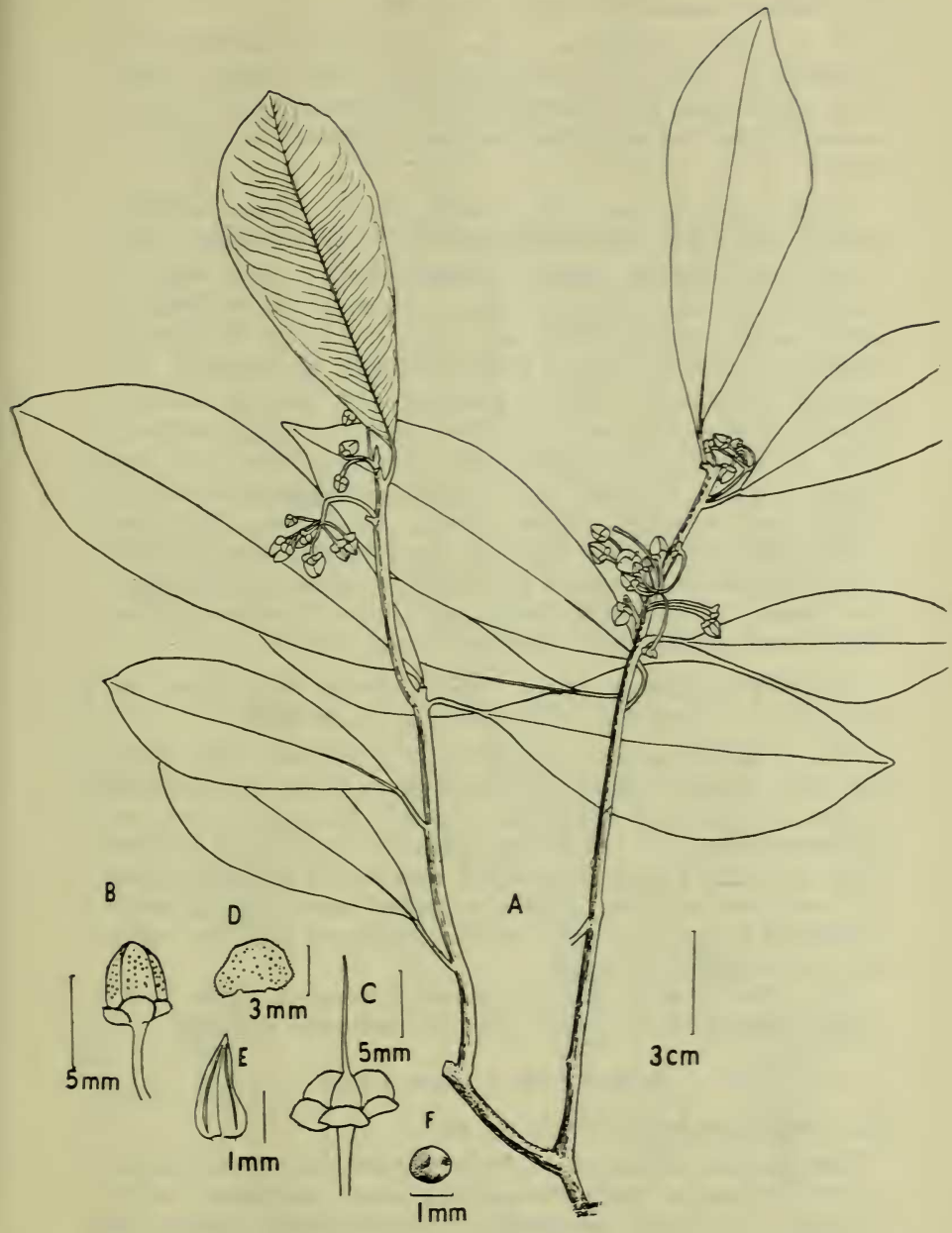
MALAYA: Pahang, Tahan River (Ridley 2,670—Holotypus in SING.): Jerantut (Holttum 24,746); Kota Glanggi (Henderson 22,438); Sungei Sat (Henderson 22,030); Raub (Strugnell 23,456). Omnia specimina in herb. Singaporense conservata.

The holotype specimen was referred doubtfully to *A. rhyncophylla* Clarke by King & Gamble in observation of *A. biflora* K. & G. in Materials IV (1905) 143, but it was not included as a Malayan species because of the imperfectness of the specimen.



Ardisia gambleana Furtado *(A, Ridley 2,670; B–F, Holttum 24,746)*

A, Ramulus fructiferus. B, Flos. C, Stamen antice visum. D, Ovarium. E, Placenta.



Ardisia tiomanensis Furtado *(Henderson 21,686—Holotypus)*

A, Habitus. B, Floris alabastrum. C, Flos petalis desumptis. D, Sepalum. E, Stamen postice visum. F, Placenta.

15. **Ardisia tiomanensis** Furtado **spec. nov.**

A. monticolae *affinissima, a qua foliis obovatis, inflorescentiis robustioribus, florum alabastris majoribus apice obtusis, sepalis semi-orbicularibus vel reniformibus valde imbricatis, extus deciduo violascenteque pubescentibus, margine ciliatissimis sat distinctissima.*

Arbusculus circa 8 m. altus, saxatilis, cum innovationibus violaceo-pubescentibus. *Folia* petiolis lepidotis supra canaliculatis circa 2 cm. longis stipitata, coriacea, obovato-elliptica, apice acuta vel acuminata, basin versus sensim acuta, utrinque deciduo lepidota, nervis multis reticulationibusque densis supra fere inconspicuis subtus prominulis percursa, multi-punctulosa vel punctulis absconditis inconspicuis diffusa, bicoloria. *Inflorescentia* axillaris, omnino deciduo violaceo-tomentulosa, ad 2 cm. usque pedunculosa, 5–10 flores umbellatim gerens; alabastra circa 6–8 mm. longa, 5–6 mm. in diam., apice rotundata, pedicellis 8–12 mm. longis, violaceo-pubescentibus suffulta. *Sepala* fere reniformia, medio multo dilata, valde imbricata, basi breviter connata, extus violaceo-pubescentia, minute punctulosa, margine pallida optimeque ciliata. *Petala* deciduo ciliolata vel scariosa. *Ovarium* glabrum; stylus ante anthesin haud exsertus. *Bacca* ignota.

MALAYA: Pahang, Pulau Tioman, prope Ayer Surin, alt. 300–700 m. (Henderson 21,686—Holotypus in SING.).

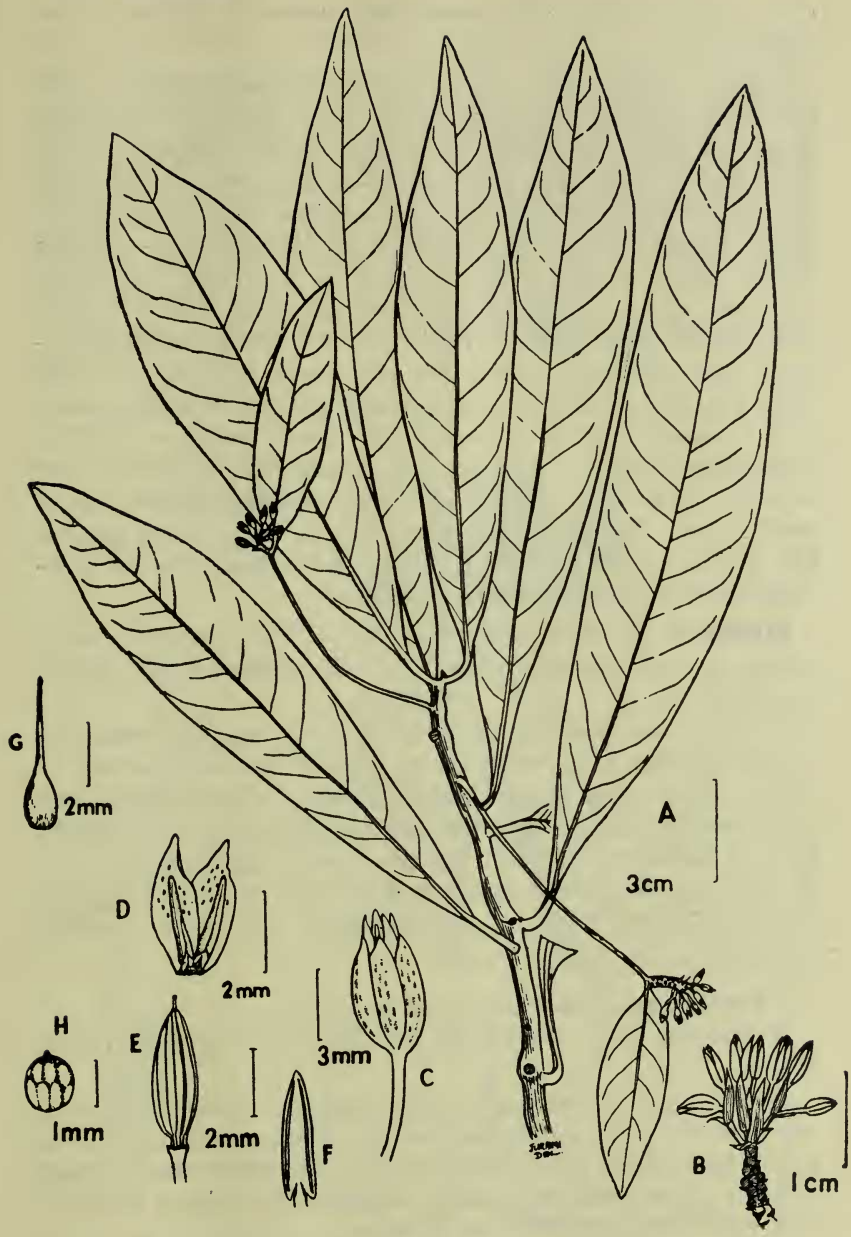
The collection has been distributed as *A. littoralis* Andr. which has very slender, acute flower buds, more united and glabrous sepals, narrower petals and septate anthers. Though the leaves are obovate-elliptic in *A. littoralis,* the violaceous pubescence is absent from the young growth. Similarly *A. tiomanensis* also differs from *A. monticola* which has elliptic-lanceolate leaves, no violaceous tomentum in any parts, very slender, acute flower buds, less imbricate sepals and acute petals.

The collector notes that this species is common in the rocky jungle, growing to 25 ft. or so tall and that flowers are pink.

Section Pyrgus (Lour.) Mez

16. **Ardisia calcicola** Furtado **sp. nov.**

Inter species ad Sectionem Pyrgum *pertinentes peculiarissima facile distinguitur: foliis intergerrimis dense punctulatis, nervis lateralibus interrupte absconditis, haud reticulatis; floribus in pedunculo abbreviato, longe bracteolato, apice ramuli producto valde congestis; pedicellis conspicue punctulatis; sepalis pro rata longissimis, fere ad basin usque liberis, quam petala punctulata*



Ardisia calcicola Furtado *(Endert 5,134, holotypus)*

A, Habitus. B, Inflorescentia. C, Flos. D, Petala duo cum staminis postice visa. E, Flos juvenilis sepalis desumptis ut stamina tubiformiter collata appareant. F, Stamen postice visum. G, Ovarium. H, Placenta.

circa ½-brevioribus, ovato-lanceolatis, utrinque lepidotis, atro punctulatis.

Suffrutex circa 50–75 cm. altus, flores in ramulorum apicibus lateralium racemoso-congestos gerens. *Folia* phyllotaxi in ramulis incerto excepto, subverticillatim collata, obovato elliptica, 30–35 cm. longa, 4–5 cm. lata, basin versus sensim attenuata, apice obtusa vel subacuta, eis ramuli 3–4-plo longiora, supra viridescentia, subtus brunnescentia, opaca, margine revoluta, utrinque pustulis minutis dense praedita, nervis primariis interrupte absconditis prope marginem arcuato ascendentibus utrinsecus circa 12, nervis secundariis fere parallelis inter primarios 1–2 fere inconspicuis percursa, haud reticulata. *Flores* 5–6 mm. longi; pedicelli 5–6 mm. longi, pustulati, bracteolis ovato-lanceolatis saepe acuminatis nonnihil breviores vel eis subaequilongi. *Sepala* utrinque lepidota, dextrorsum tegentia, atro-punctulata, petalis circa ½-breviora, fere ad basin usque libera, ovato- vel oblongo-elliptica, apicem versus sensim acuta. *Petala* sepalis paulo longiora, acuta, dorso punctulata. *Stamina* breviter stipitata, petalis vix breviora. *Ovarium* glabrum ovulis biseriatim dispositis praeditum.

BORNEO: in regione Centrali in provincia malaice Kutai dicitur, in saxis cretaceis, circa 30 m. alt. (Endert 5,134—Holotypus in SING.).

The collector notes that the shrub is 50–75 cm. tall, producing dark red flowers and growing on the edge of limestone rockface.

The calyx is rather long and deeply divided, but such long calyces are known to occur in the other sections of the genus. The flowers are in a bad state to admit a further scrutiny. No fruits are available. Because the flowers are borne at the apices of special branches and because the leaves are subverticillate, the species belongs obviously to the Section Pyrgus.

17. **Ardisia calophylla** Furtado **sp. nov.**

A. littoralis Andr. *sensu* Ridl., Fl. Mal. Pen. II (1923) 241 in obs.

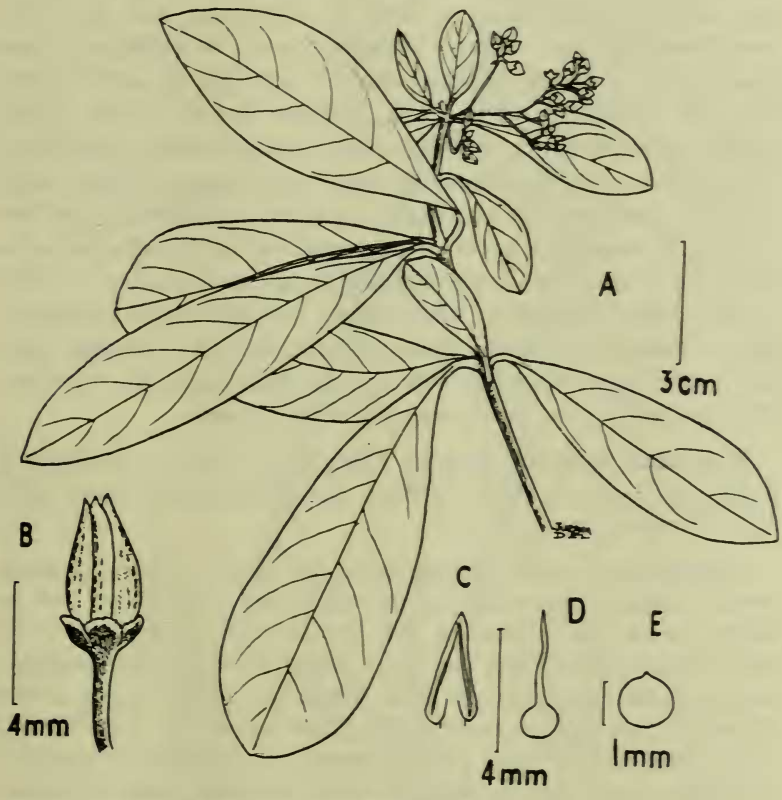
Ab A. kurzii, *cui affinissima, foliis minoribus, coriaceis, obovatis cum nervis reticulationibusque obscuris; inflorescentiis paniculatis, quam folia paulo brevioribus; sepalis suborbicularibus margine ciliolatis, sicut petala punctulatis; antheris acutis dorso glandulas paucas distantes gerentibus sat distincta.*

Ramuli glabri, in sicco sicut folia foenicolores. *Folia* glabra, punctis manifestis destituta, obovato-elliptica, apice arcuatim acuta vel breviter acuminata, 6–10 cm. longa, 3–4 cm. lata, basin versus

sensim cuneata, imo paulo decurrentia, petiolis supra sulcatis 5–10 mm. longis stipitata, nervis reticulationibusque fere obscuris praedita. *Inflorescentia* glabra, ramuli foliis subverticillatim praediti apice sita, paniculata, in ramulos floriferos valde divisa, ad 6 cm. usque longa. *Flores* ante anthesin conoidei; apice rotundati 3–4 mm. longi; pedicellis 3–5 mm. longis. *Sepala* basi 1/3 coalita, valde dextrorsum imbricata, fere orbicularia, glabra, dorso glandulosa, margine lutescentia, scarioso-ciliolata. *Petala* calyce subtripulo longiora, glandulosa. *Stamina* petalis paulo breviora, acuta, dorso pauciglandulosa. *Ovarium* ovoideum, glabrum.

MALAYA: Dindings, Bruas (Burn-Murdoch in 1909—Herb. SING.).

The collector notes that the flowers are white.



Ardisia calophylla Furtado *(Burn-Murdoch-Holotypus)*

A, Habitus. B, Flos per anthesin. C, Stamen postice visum. D, Ovarium. E, Placenta.

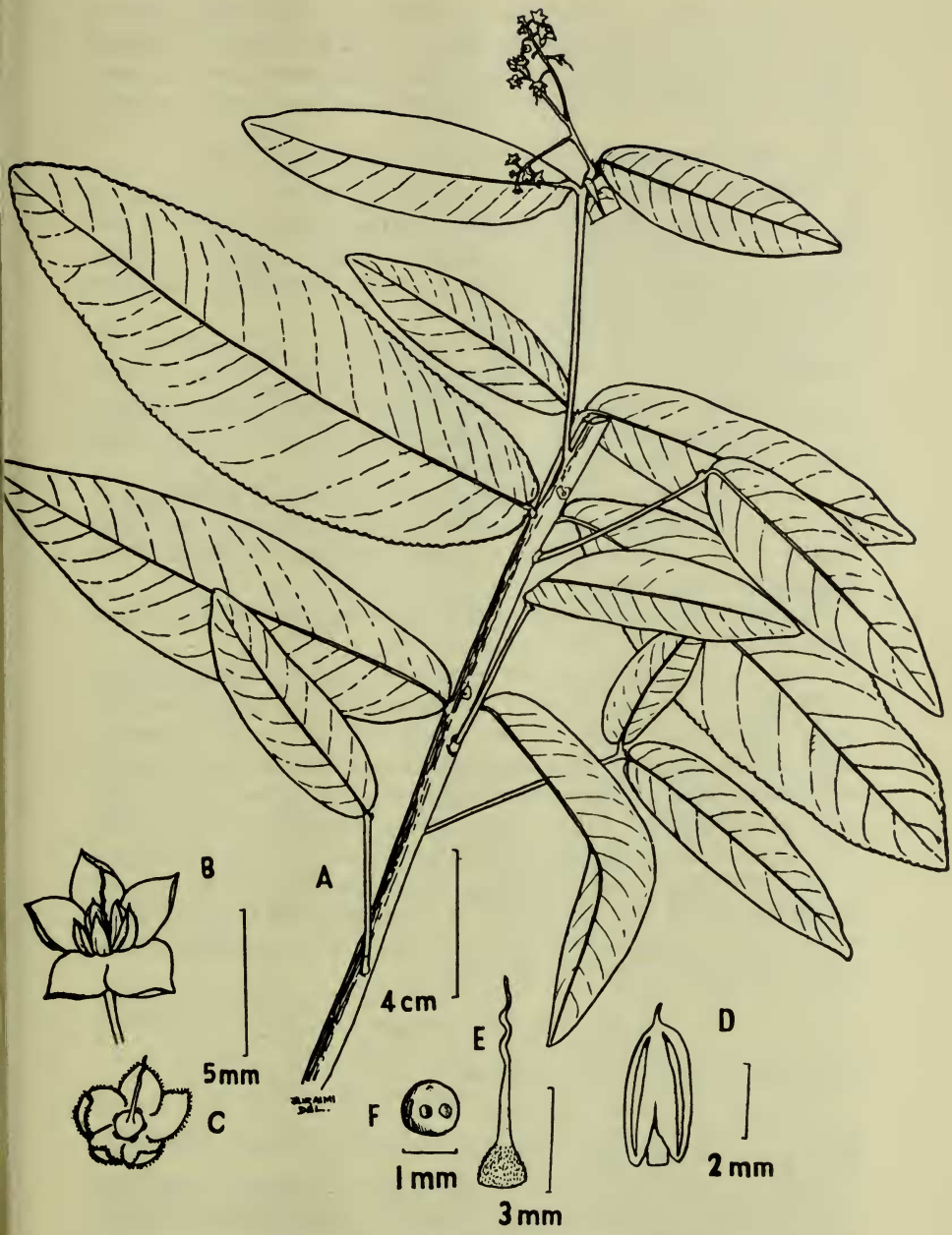
18. **Ardisia purseglovei** Furtado **sp. nov.**

A. candolleanae *valde affinis, a qua foliis ovoideo oblongis basi pseudo-cordulatis, subsessilibus, glabris, margine obscure crenulatis, glandulas magnas mox deciduas unocuique sinu singulas gerentibus, subtus minutissime punctulatis, cum nervis lateralibus reticulationibusque obscuris; sepalis tetrameris vel pentameris, extus tomentosis, intus glabris, margine ciliatis, eglandulosis; ovariis tomentellis facile distinguitur.*

Frutex circa 3 m. altus, cum ramulis spiculiferentibus 5–10 cm. longis. *Folia* coriacea vel chartacea, ovoideo oblonga, apicem versus arcuatim angustata, summo obtusa, basi rotundato truncata, imo ob rugas pseudo-cordulata, petiolis brevissimis ad 3 mm. usque longis stipitata, in ramulis spicas gerentibus subverticillata, margine obscure crenulata et revoluta, in unocuique sinu glandulas conspicuas deciduas singulas ferentia, nervis reticulationibusque obscurissimis praedita, subtus punctulis minutissimis dense aucta, 8–15 cm. longa, 2·5–4·5 cm. lata, utrinque glabra, novella subtus deciduo rubro-lepidota. *Inflorescentia* apicalis omnino tomentella, ex axi primario valde abbreviato, circa 2 cm. longo, in ramos circa 4, paulo ramulosos divisa. *Flores* in ramulis inflorescentiae primariis vel secundariis producti, tetrameri vel pentameri, pedicellis puberulis circa 5 mm. longis suffulti. *Sepala* coriacea, basi ¼–1/3-coalita, ovato triangularia apice obtusa vel subacuta, intus glabra, extus tomentosa, punctulis manifestioribus destituta, margine ciliolata. *Petala* calyce fere duplo longiora deciduo lepidotula, punctata. *Ovarium* pubescens, ovoideum, cum stylo tortuoso.

BORNEO: Sarawak, Gunong Pueh, alt. ± 150 m. (Purseglove 4670—holotypus in Herb. SING.). Specimina isoholotypica in K. et L. distributa non vidi.

The species is readily recognised by the ovate oblong, subsessile, pseudocordulate leaves having practically no reticulations and its lateral nerves inconspicuous, the inflorescence being hairy (the hairs are capitate), and the ovary puberulous. The leaf-margins are somewhat crenulate, but as the margins are revolute, the crenulations are not easily seen especially if the leaves are mounted with their lower surface glued onto the sheet. *A. brachythyrsa* has also subsessile leaves, but in that the leaves are much more rigid and coriaceous, almost obovate, having their nerves and reticulations quite conspicuous on both surfaces. The sepals are smaller there and less tomentose and the ovary is quite glabrous.



Ardisia purseglovei Furtado *(Purseglove 4,670—Holotypus)*

A, Habitus. B, Flos post anthesin. C, Flos petalis desumptis. D, Stamen postice visum. E, Ovarium. F, Placenta.

As the leaves are crenulate and bear a conspicuous gland in each sinus, the species may be easily put in the Section CRISPARDISIA as defined by Mez, but the mode of flowering and subverticillate leaves have led me to place species in the Section PYRGUS.

19. **Ardisia vaughanii** Ridl., Fl. Mal. Pen. II (1923) 248.

MALAYA: Perlis, Telor Jambu (Ridley 14,932, distributed as *A. sanguinolenta* Wall.?). **Kedah,** Gunong Baling (Kiah 35,383 & s.n. on 11–V–1938; Best 21,226; Nauen 38,022). **Perak,** Temengoh (Schebesta 2). **Pahang,** Kuala Tembeling (Holttum 20,552 & 24,723; Henderson 21,780).

The type was from Kelantan. Ridley placed this species in the Section TINOPSIS, but it should be placed in the Section PYRGUS (Lour.) Mez, the species being an ally of *A. kurzii* Clarke. Squires 848 from Anam, Indochina, distributed as *A. rigida* Kurz comes very close to the Malayan species.

According to the notes of the collectors, this is a shrub 6–8 ft. tall, bearing clusters of flowers having pale pink petals with dark centre, deep pink peduncles and pedicels, and red fruits which eventually turn black.

The following notes may be of use to supplement the original description:

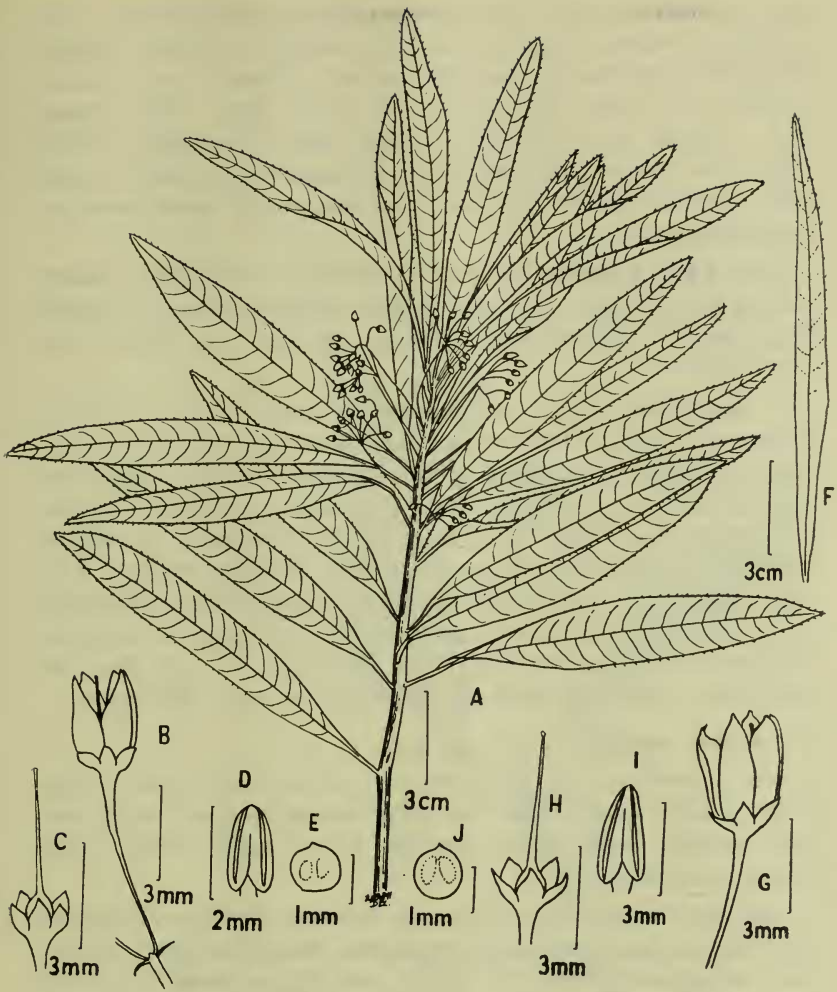
Leaves subverticillate on the main stem, with many small glands inconspicuous in some leaves, but generally quite conspicuous on both surfaces, glabrous. *Inflorescences* terminal usually borne on short lateral branches. *Peduncles* and pedicels deciduously puberulous and lepidote, somewhat ferrugineous. *Sepals* ovate triangular with rounded apex, 1/3 united at base, imbricate in buds, glandular and minutely puberulous on the dorsum, ciliate in margins. *Petals* with many glands, gradually acute. *Stamens* nearly as long as the petals, acute or mucronulate at apex, provided on the dorsum with no or few glands which are not black. *Ovary* glabrous. *Fruit* black when dry, longitudinally ridged.

Section BLADHIA (Thunb.) Mez

20. **Ardisia foliosa** Furtado **sp. nov.**

A. linearifolia Ridl. in Journ. Roy. Asiatic. Soc. Str. Br. 61 (1912) 27 et Fl. Mal. Pen. II (1923) 255, non *A. linearifolia* Miq. (1860); **Syn. nov.**

Suffrutex parte erecta 20–40 cm. longus, in parte basali repens vel subterranea ramulos erectos gerens, cum innovationibus minute puberulis. *Folia* subverticillatim congesta, membranacea, costis medianis exceptis minute puberulis utrinque glabra, lineari lanceolata 10–12 cm. longa, 15–20 mm. lata, utrinque sensim acuta,



Ardisia foliosa Furtado (*A–E, Holotypus; F–J, Merotypus A. linearifoliae* Ridl.)

A, Habitus. B, Flos post anthesin apice pedunculi situs. C & H, Flos petalis desumptis. D & I, Stamen postice visum. E & J, Placenta. F, Folium. G, Flos post anthesin.

apice plerumque mucronulata, margine valde denticulata et revoluta, supra brunnea, subtus pallidiora, nervis secundariis utrinsecus 16–20, reticulationibus remotis subtus prominulis supra obscuris praedita, glandulis novellis obscuris dein prominulis praecipue secus marginem et apice punctata, petiolis 10–15 mm. longis stipitata. *Inflorescentiae* axillares, simplices vel pauciramosae, axi

minute puberulae, cum pedunculis gracilibus bracteolatis, apice 3–8 flores congestis, infra apicem flores solitarios vel etiam ramulos florigerentes productis; pedicellis minute puberulis vel glabrescentibus 8–15 mm. longis. *Flores* 3–4 mm. longi, ante anthesin acuti. *Sepala* basi 1/3-unita, ovata, acuta, margine ciliolata, albescentia, dorso pauciglandulosa vel non. *Petala* ovato acuminata, interdum subito apiculata. *Stamina* petalis multo breviora. *Baccae* non visae.

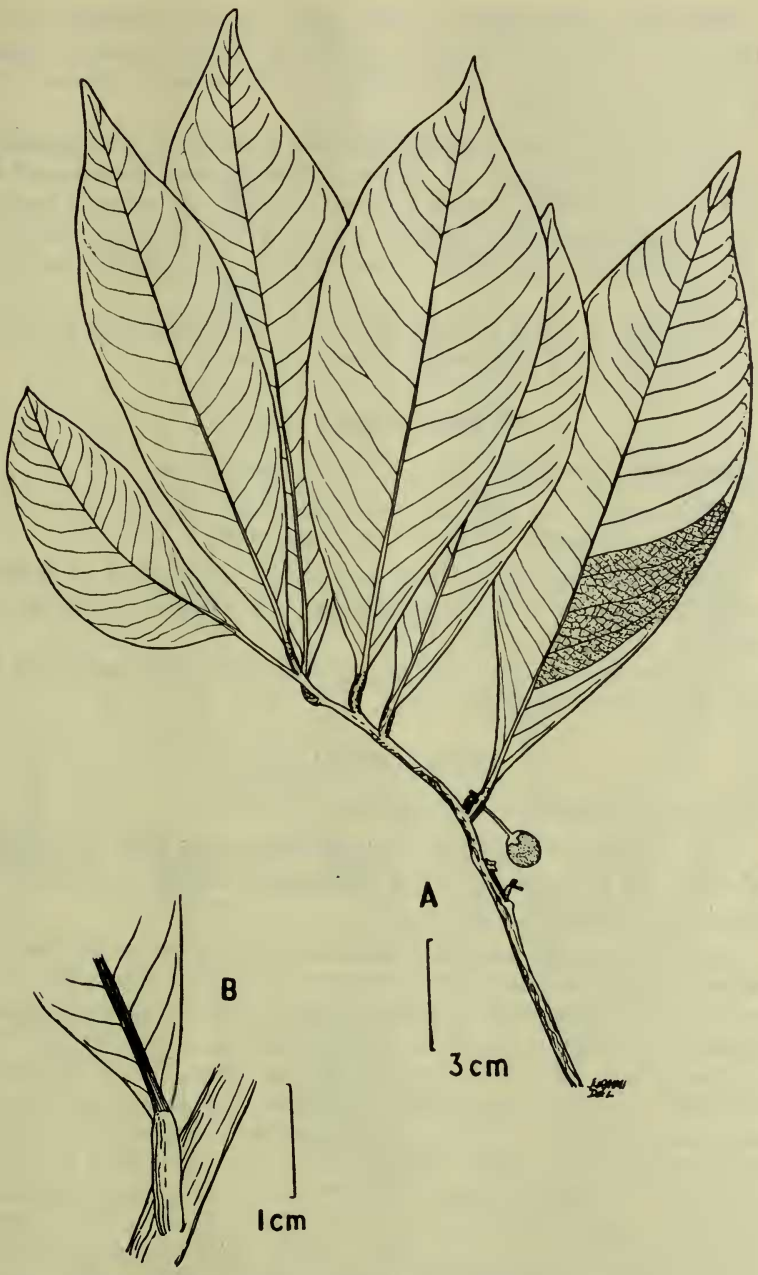
MALAYA: Kelantan (Henderson 29,656—Holotypus). **Johore,** Sungei Kayu (Kiah 23,330). **Perak,** Gunong Bongsu (Haniff, Merotypus *A. linearifoliae*). Omnia specimina in Herb. Sing. conservata.

A. linearifolia Ridl. is an impriorable name since it is a later homonym. This and the fact that the species was based on a fragmentary material cultivated in the Botanic Gardens, Singapore, have induced me to establish a new species based on better material the duplicates of which have been widely distributed. In accordance with the definition given previously (Furtado in Gard. Bull. Straits Settl. IX, 1937 p. 289) I have employed the term merotype to designate the specimen taken from the type plant on which *A. linearifolia* Ridl. was based. In the plate figs. F–J are from the fragmentary merotype material preserved in herb. Singapore.

21. **Ardisia tumida** Furtado **sp. nov.**

Ab A. metallica, *cui affinissima ut videtur, caule haud pubescenti, ramulis novellis deciduo ferrugineo-furfuraceis, foliis margine eserratis undulatisque, petiolis subtus valde tumidis haec species sat distincta.*

Suffrutex circa 60–100 cm. longus, lignosus, in vivo cortice valde succosus, in sicco irregulariter angulatus, ramulis novellis axi deciduo ferrugineo-furfuraceis, 15–30 cm. longis praeditus. *Folia* saepe subverticillatim collata, petiolis 1–2 cm. longis, supra paulo alatis, sulcatis, subtus valde tumidis stipitata, obovato-elliptica margine undulata, membranacea, pellucida, utrinque glabra, basin versus paullatim angustata, imo sub-acuta, apice eleganter acuminata, 15–20 cm. longa, 4·5–7 cm. lata, nervis primariis utrinsecus 14–20 praedita, prominulo reticulata, glandulis minutis pluribus omnino dispersa. *Inflorescentia* stricte axillaris parva cum pedunculo 5–10 cm. longo, simplici vel bifurcato, 3–5 fructiferenti, pedicellis fructiferis gracilibus, circa 10 mm. longis. *Bacca* globosa, 6–7 mm. in diam., purpureo-glandulosa; sepalis 1/3-coalitis, carnosis, glabris, obscure glandulosis vel non.



Ardisia tumida Furtado *(Corner 30,290, holotypus)*

A, Fragmentum caulis cum fructu. B, Fragmentum caulis ut petiolus subtus tumidus appareat.

MALAYA: Kemaman in locis juxta flumina paludosis: Ulu Bendong (Corner 30,290—Holotypus in SING.): Sungei Nipah (Corner s.n. in Nov. 1935—SING.); Ulu Kajang (Corner s.n. in Nov. 1935—SING.).

The species is readily distinguished by its peculiar, water-holding cortex on the underside of the petioles, being very pronounced in older leaves. Similar cortex is found all over the stem, a reason why it dries to produce irregular ridges. Young twigs are covered with fugaceous, rusty-furfur· Leaf margins are undulate, but not serrate.

The collector notes that the plant is 3 ft. tall with pale red berries. No flowering specimen has been available.

HYMENANDRA A.D.C.

Hymenandra iteophylla (Ridl.) Furtado **comb. nov.**

Ardisia iteophylla Ridl. in Journ. Bot. LXII (1924) 298 et Fl. Malay Pen. V Suppl. (1924) 318: **basinymus.**

That the stamens are connate into a tube was noticed by Ridley himself; they have also a small free tip. In Ardisia the stamens are free.

This is a first record of the occurrence of the genus not only in Malaya, but also outside Assam.

TETRARDISIA Mez

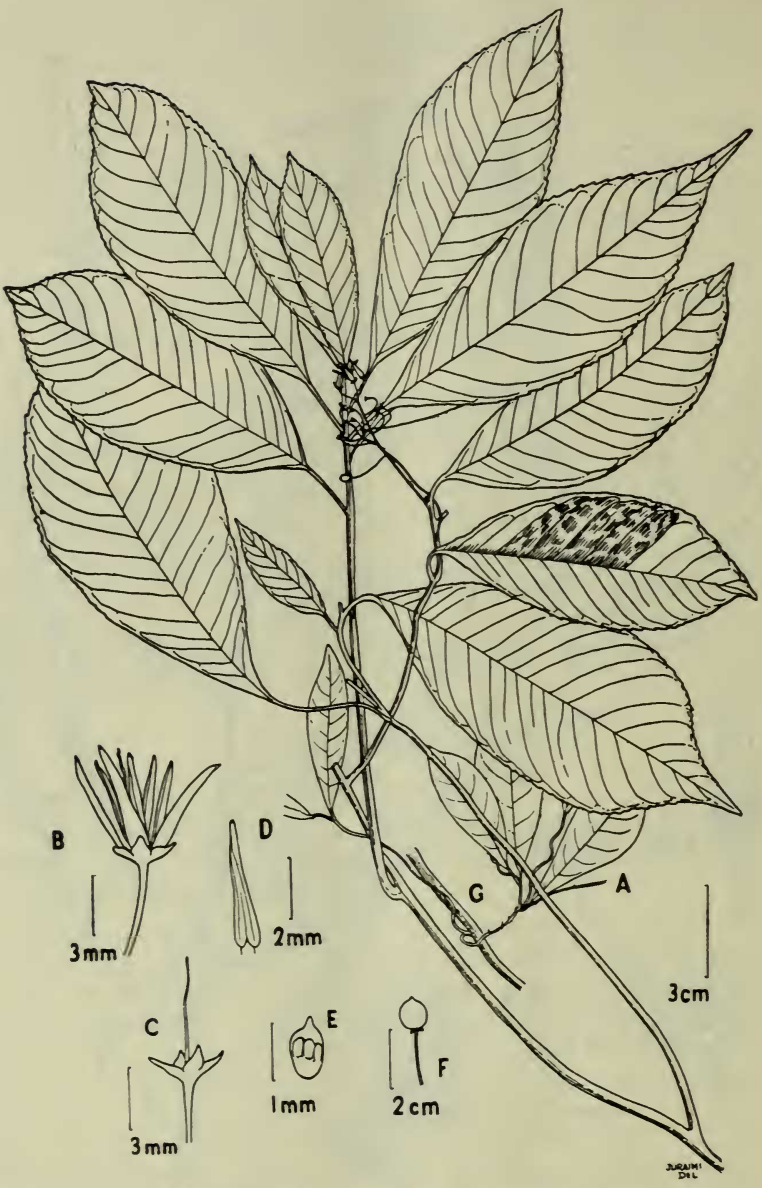
Tetrardisia corneri Furtado **sp. nov.**

A T. denticulata (Bl.) Mez, *cui affinissima, sed foliis majoribus, obovatis vel oblongis, inter venae nonnihil bullatis, inflorescentiis longioribus facile distinguitur.*

Suffrutex circa 60 cm. altus, lignosus. *Folia* obovato-elliptica vel oblonga, basin versus sensim attenuata vel subito angustata, imo acuta, apice acuminata, margine crenata, reticulationibus densis utrinque prominulis praedita, nervis primariis utrinsecus 12–20 percursa, inter nervos bullata, 15–20 cm. longa, 4·5–8 cm. lata, punctulis pluribus, atrescentibus praedita. *Inflorescentiae* terminales vel axillares, 5–6 cm. longae, pedunculis gracilibus, apice flores distantes gerentibus, vel etiam in 1–2 ramulos circa 1–2 cm. longos florigerentos divisae; pedicellis 8–10 mm. longis, minute puberulis. *Flores* tetrameri, ante anthesin acuti, 6–8 mm. longi. *Sepala* imbricata, basi 1/3-unita, ovata apice rotundato-acuta, dorso minute glandulosa, in fructu reflexa. *Petala* calyce fere quadruplo longiora, apicem versus sensim acuta. *Anthera* petalis vix breviora, apicem versus sensim attenuata, dorso atropunctata,

Hymenandra iteophylla (Ridl.) Furtado *(Holttum 10,973, Isotypus)*

A, Habitus. B, Inflorescentia. C, Floris alabastrum. D, Calyx. E, Flos ut tubus staminem appareat. F, Ovarium.



Tetrardisia corneri Furtado *(A–F, Corner, Holotypus; G, Corner, Paratypus)*

A. Habitus. B, Flos per anthesin. C, Flos petalis desumptis. D, Stamen postice visum. E, Placenta paulo tabida. F, Fructus cum pedicello. G, Inflorescentia in ramulum transformata (ex specimine paratypico mawaiensi).

longitudinaliter introrsum et per foramina apicalia dehiscentia. *Ovarium* ante anthesin unicum visum, imperfectum; stylus filiformis, paulo tortuosus, stigmate punctiformi praeditus. *Bacca* globosa, circa 6 mm. in diam., novella glandulis pluribus conspicuisque, in maturitate fere inconspicuis et sulcis verticalibus praedita.

MALAYA: Johore in locis paludosis: Sungei Berassau prope viam Mawai—Jemaluang (Corner sn.—Holotypus); Mawai (Corner sn.); Gunong Panti ad basin (Ridley—Dec. 8, 1892)—Omnia specimina in Herb. Sing. conservata.

The growth of inflorescence is somewhat similar to that in *T. tetrasepala* and the anthers appear to dehisce through both the apical pores and the longitudinal slits. Only one unopened flower was available (besides one opened one) and this had decayed somewhat. What looks like ovules in the ovary were really cavities.

One specimen (Mawai) had some inflorescences transformed into small plants, though its apical inflorescence bore fruits.

Probably Alvins 2336 from Malacca is this species, but the label does not belong here, for according to Alvins' notes the plant is a tree about 30 ft. tall with very hard, dark red wood. The leaves are longer, lanceolate elliptic or ovate elliptic, gradually narrowed to produce an acuminate apex and sub-rotund base. The specimen has scars of fallen peduncles.

Ridley's specimen from a herb grown in the Botanic Gardens, Singapore, in 1892 and figured in colours by Alwis in a plate preserved in the Singapore herbarium should also be assigned here, though being from a very young plant the leaves are smaller with shorter petioles. The drawing shows different shades of pink or mauve in the pedicels, calyx and corolla. Ridley suspected the plant to have come from Pahang.

Tetrardisia porosa (Clarke) Furtado **comb. nov.**

Ardisia porosa Clarke in Hook. f., Fl. Brit. Ind. III (1882) 522; Mez in Engl. Pflanzenr. IV 236 = Heft 9 (1902) 118; King & Gamble, Mat. Fl. Malay. Pen. IV (1905) 132; Ridl., Fl. Mal. Pen. II (1923) 248 fig. 97. **Basinymus.**

MALAYA: Perak, Taiping Hills (Henderson 10,454 & 10,438; Ridley 14,262); Gunong Hijau (Ridley in February 1891); Batu Togo (Wray 2,160); Larut (Scortechini 116[a]); Ayer Larut (Wray 39); Tupai (Wray 2,835). **Malacca,** Panchor (Goodenough) 1528). **Negri Sembilan** (Ridley in December 1890).

It is possible that the pollen shedding through apical pores of the anthers is also a characteristic of the genus Tetrardisia.

Tetrardisia tetrasepala (King et Gamble) Furtado **comb. nov.**

Ardisia tetrasepala K. & G. Mat. Fl. Malay. Pen. IV (1905) 352; Ridl. Fl. Mal. Pen. II (1923) 244—**basinymus.**

Ad descriptionem originalem adde:

Flores circa 10 mm. longi, ante anthesim valde acuti, tetrameri, 8–20 subumbellati, acropetales, in ramulo axillari vel apicali in singulos annos pedunculiformiter 3–20 mm. aucto siti; pedicelli graciles, 8–15 mm. longi. *Sepala* dextrorsum imbricata, ovata, apice rotundata, margine albescente nuda vel ciliolata, dorso minute punctulata, in fructu reflexa. *Petala* calyce fere triplo longiora, lanceolata, apice sensim acuta, punctulis parvis multis prope marginem picta. *Anthera* breviter stipitata, petalis vix breviora, apice sensim acutissima, dorso bene punctulata, introrsum longitudinaliter et per foramina apicalia dehiscentia. *Ovarium* glabrum vel minuti puberulum, cum ovulis paucis uniseriatim dispositis, stylo gracillimo, nonnihil spirali, petalis subaequante; stigmate punctiformi.

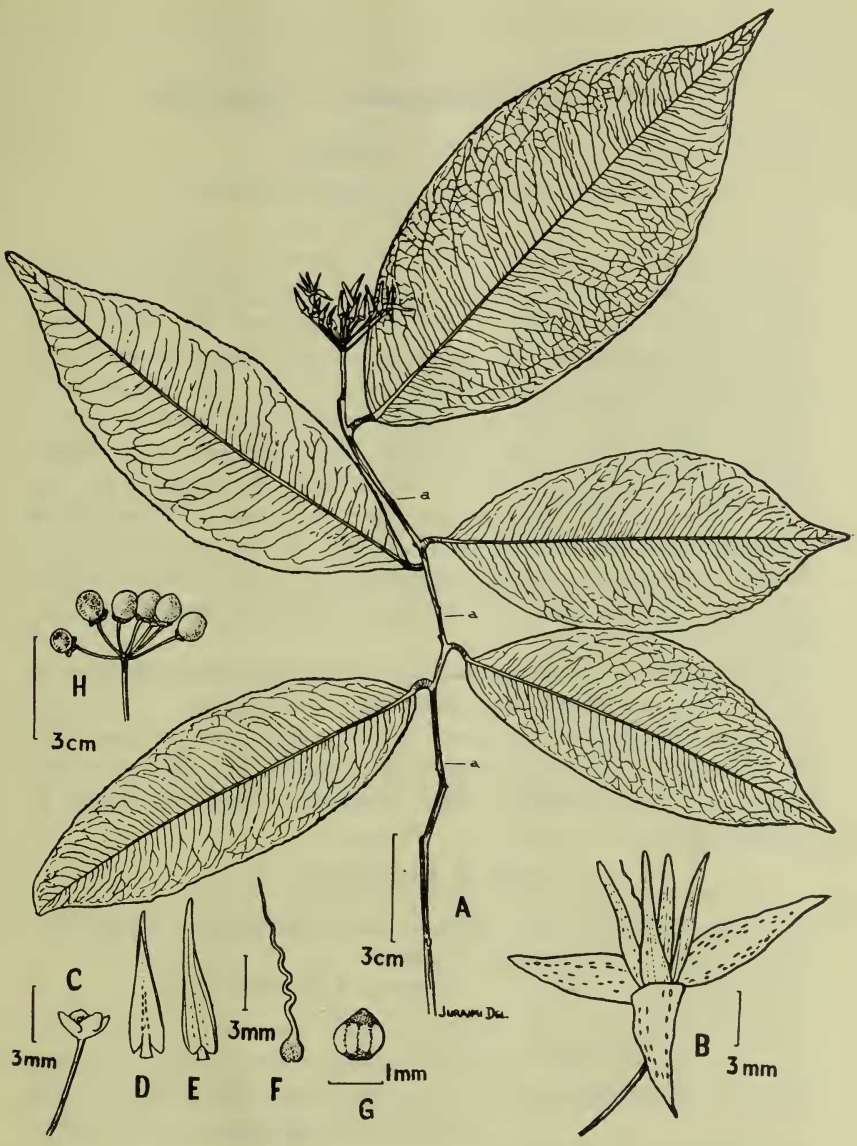
MALAYA: Johore, Gunong Pulai (Nur & Kiah 7,805—Apotypus; Ridley sn. & 12,193: Omnia specimina in Herb. SING.).

The inflorescence may be termed sometimes axillary and sometimes terminal. But what appears to be peduncles are really the current year growth of the axillary or terminal buds or twigs. When flowers and fruits are shed, the "peduncles" will grow again to produce flowers in the next season without producing any leaves. Later the same will produce one or more leaves before flowering again.

The tissues connected with the leaves produce a ridge on the stem from node to node and as the petiole of the terminal leaf grows much thicker than the main axis, the terminal inflorescence appears nearly axillary. This mode of growth also tends to make the stem zig-zag. Vestiges of fallen flowers may be seen on stem.

The anthers shed pollen both through apical pores and through longitudinal slits. The leaf margins are undulate and sometimes slightly crenate, and the petiole is often transversely wrinkled, the wrinkles acquiring dark brown colour.

Tetrardisia was not recorded to occur outside Java. King & Gamble had noted the tetramerous calyx, but they had no flowers to define the species generically. In the Singapore herbarium, of the three collections from the type locality in Johore (Gunong Pulai) only Nur and Kiah 7,805 have flowers which have served to place the species definitely into this genus. Hence it may be called the apotype. (cf. Furtado in Gard. Bull. Straits Settl. IX (1937) 288).



Tetrardisia tetrasepala (K. & G.) Furtado *(A–G, Nur & Kiah 7,805, Apotypus; H, Ridley 12,193)*

A, Habitus. A–a, Vestigia florum prioribus annis delapsorum. B, Flors per anthesin. C, Calyx cum pedicello. D, Stamen postice visum. F, Ovarium. G, Placenta. H, Umbella fructifera.